



IMPROVING PEA PRODUCTION – YIELD AND NITROGEN CONTENT OF PEA CULTIVARS WITH DIFFERENT LEAF TYPES

Tran CT 1), Becker HC 1), Horneburg B 1), 2)

1) Division of Plant Breeding Methodology, Department of Crop Sciences, University of Göttingen, Germany.

2) present address: University of Kassel, Faculty of Organic Agricultural Sciences, Section of Organic Plant Breeding and Agrobiodiversity, email: ctran@gwdg.de

Introduction

- There are two main plant architectures of pea (*Pisum sativum*) i.e. normal leaf and semi-leafless. The second group is based on the *AFILA* mutation (*afaf TLTL*).
- Semi-leafless peas have advantages in standing stability and therefore, a reduction of pathogens in comparison to the normal type. However, normal leaf genotypes have advantages in light interception due to their larger foliage.



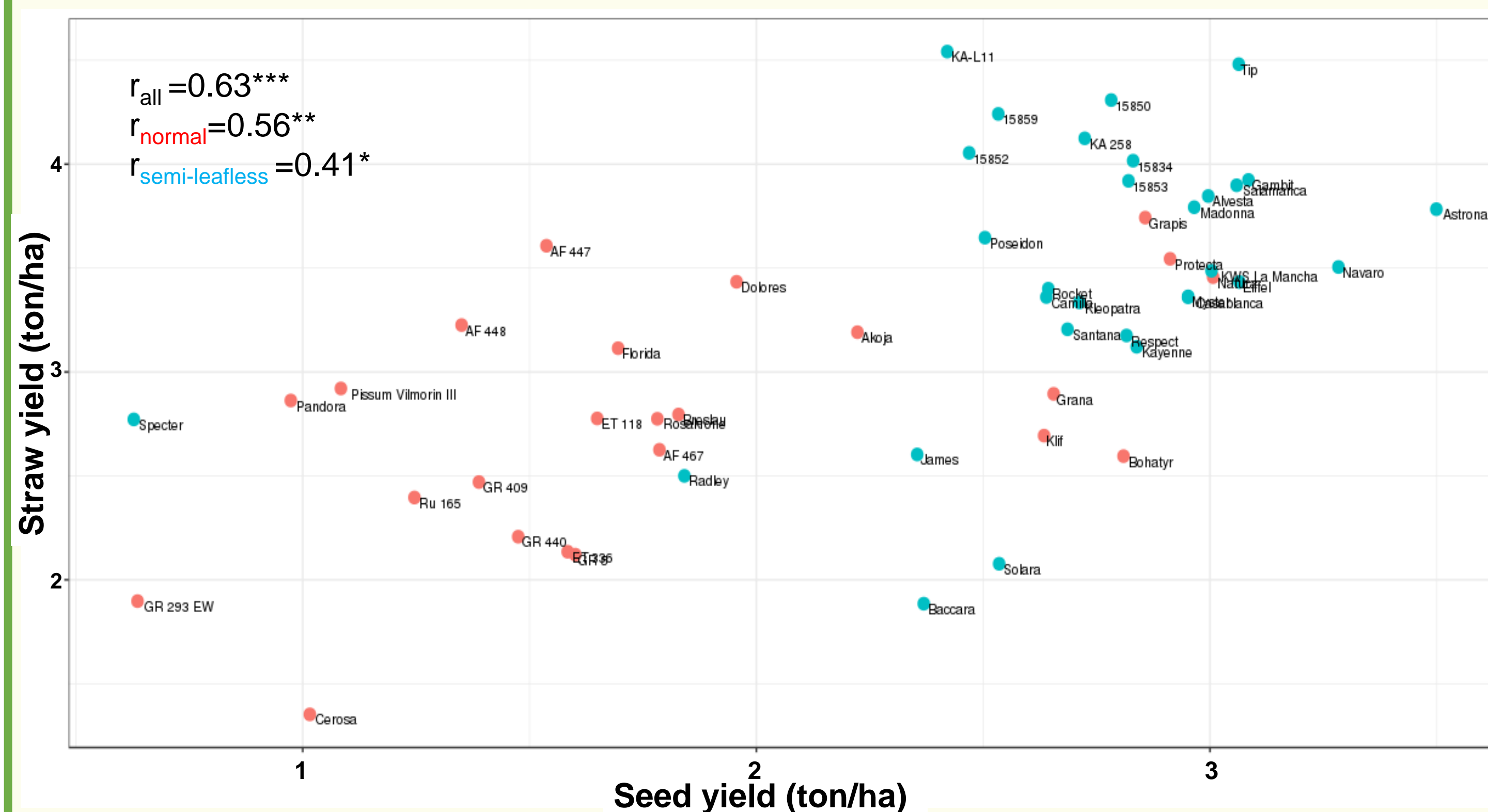
Objective

Assessment of the effect of leaf types (normal leaf vs. semi-leafless) on yield and nitrogen content in seed and straw.

Materials and Methods

- Totally 54 genotypes: 24 normal leaf & 30 semi-leafless.
- Three environments in Central Germany.
- Randomized complete block design, two replicates, 5m²/plot, 100 seeds/m².
- Nitrogen content was analysed by Advanced Purge and Trap (APT) technology (Elementar).

Results



Leaf type: ● normal leaf ; ● semi-leafless

Figure 1: The distribution of seed yield and straw yield in the mean of 3 environments

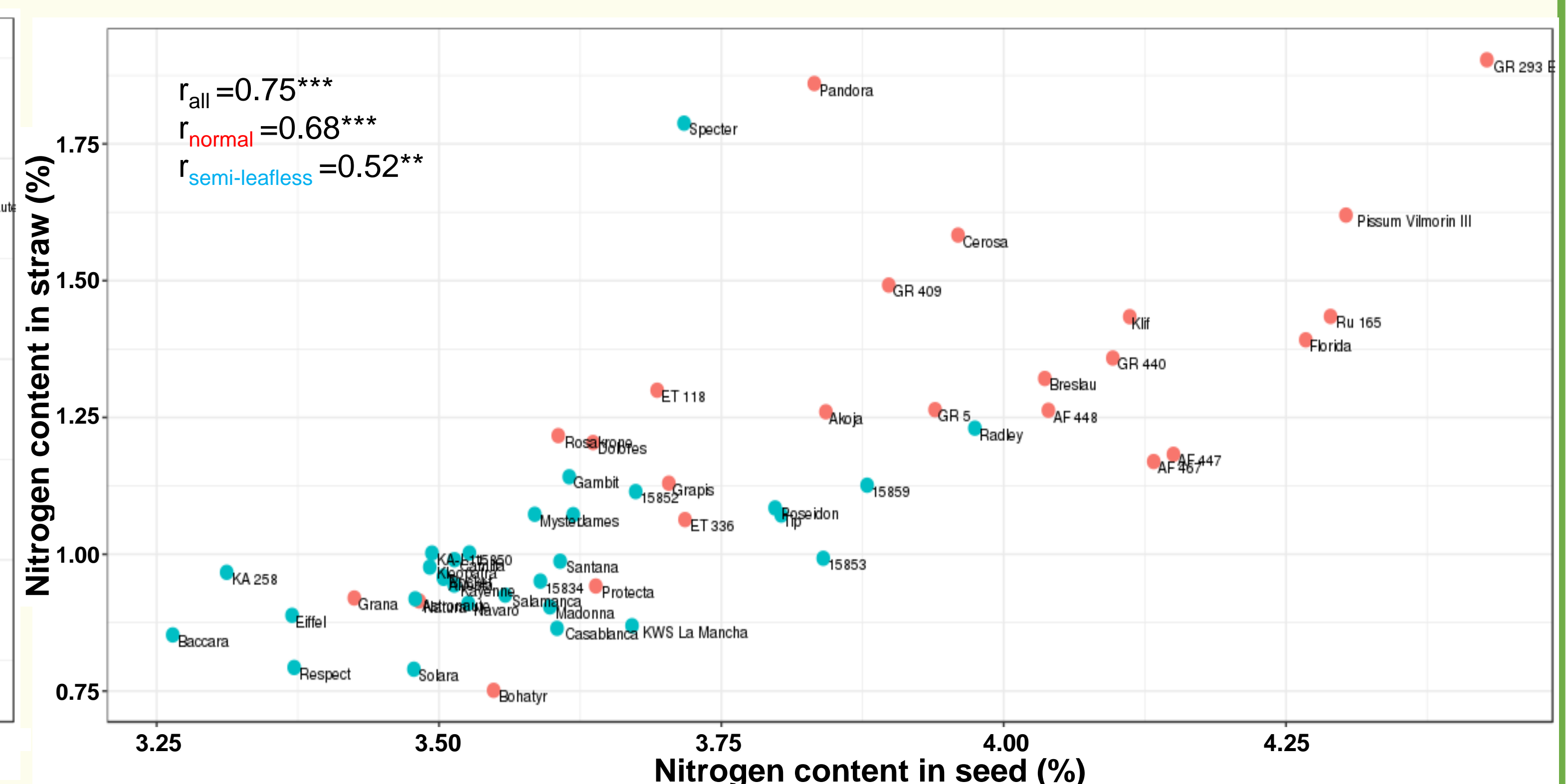


Figure 2: The distribution of nitrogen content in seed and straw in the mean of 3 environments

- The correlation between seed yield and straw yield within the normal leaf group and semi-leafless group was positive (figure 1). Also, the nitrogen content in seed and straw was positively correlated within both groups of leaf type (figure 2).

Discussion

Most of the semi-leafless cultivars were more recently developed than the normal leaf cultivars. A genetically balanced comparison of near-isogenic bulks from segregating progenies is in preparation.

Conclusion

Pea cultivars with normal leaf type are interesting for breeding due to their higher protein content, though they are relatively lower in yield.



Acknowledgement

Tran, Chi Thanh received a scholarship from the Gov. of Vietnam & DAAD

Provided funds for the research: Software AG Foundation; Lower Saxony Ministry of Food, Agriculture & Consumer Protection.

Supplied pea genotypes: GZPK, NPZ, Naturland.